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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,462	07/19/2002	Michael Johannes Vellekoop	30893-1059	6416

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EXAMINER

WILSON, KATINA M

ART UNIT PAPER NUMBER

2856

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/980,462

Applicant(s)

VELLEKOOP ET AL.

Examiner

Katina M Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 6-8, 12-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 08 September 2003 have been fully considered but they are not persuasive. The Applicant is arguing "incorporates electrodes in the bottom of the chamber" and "the volume of the liquid in a chamber" on page 6 and 7.

Piatkowski's, Jr. teaches the electrodes 18, 20 are incorporated in the "bottom of the chamber" as much as at the top. Claim 1 does not recite that the electrodes can not extend vertically from the top wall of the chamber to the bottom wall of the chamber.

The Applicant may believe the claim is limited to the bottom wall 3 of the chamber 2, but however the claim is limited to the electrodes are incorporated in the chamber's bottom.

As to Piatkowski, Jr. does not teach "the volume of the liquid in a chamber" the limitation is intended use of an apparatus.

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

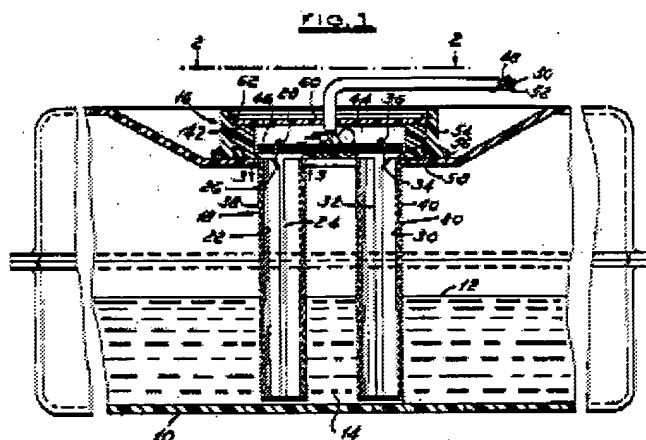
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Platkowski, Jr. 4010650.

Platkowski, Jr. 4010650 teaches a probe and electronic circuit assembly, generally designated by the numeral 16, is mounted on the reservoir 10. The assembly 16 includes probes 18 and 20 spaced from one another in the reservoir and *extending vertically therein from the top to the bottom of the reservoir*. The probes are identical. FIG. 3 is a sectional view of the probe 18. It may be seen that the probe 18 includes a metal electrode 22 and probe 20 includes a metal electrode 30 (col. 2, lines 33-49). If the circuit between the electrodes 22 and 30 is supplied with an alternating voltage of *suitable frequency*, the impedance between electrodes 22 and 30 may be made to have a reactive component, which is substantially in excess of the resistance component contributed primarily by the liquid 14 between the dielectric materials 38 and 40. If this reactive component is substantially greater, than the resistance, then the resistance contribution is negligible and the variation in impedance between the electrodes 22 and 30 as the liquid level 12 varies as a function of the reactive component and may be sensed to provide an indication of liquid level (col. 3, lines 49-61). As shown in the figure below, Platkowski has a reservoir having a bottom and sidewalls. The figure

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further shows a probe assembly including two probes with electrodes connected to a voltage source.



Platkowski, Jr. does not clearly teach an opening to receive liquid, but however suggest an opening is sealed via a flange adaptor. The electrode housing 42 is positioned within a flange adaptor 54 that is welded at 56 to the reservoir 10. Typically, a *reservoir for potable water* is made from polyethylene plastic because this material does not contaminate potable water. For this reason, it is preferred that the flange adaptor 54 and the weld 56 be formed from polyethylene materials. An O-ring 58 forms a seal between the flange adaptor 54 and the electrode housing 42. A plastic cover 60 encloses the chamber 44, and the electrode housing 42 and cover 60 are maintained in position in the flange adaptor 54 with a metal snap ring 62 which fits in a groove formed in the flange adaptor 54 (col. 3, lines 9-21). This suggestion is obvious to one skilled in the art at the time the invention was made that a reservoir for potable water has a means for receiving a liquid.

Patkowski, Jr. does not state the probe/electrode combination has to be incorporated at the bottom of the reservoir. However, suggest this design choice is

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possible to one skilled in the art in phrase "*extending vertically therein from the top to the bottom of the reservoir*" and therefore modifying Patkowski, Jr. invention to have the probe/electrode assembly attached to the bottom of the reservoir will still measure the liquid level and the impedance of the liquid in the reservoir will be sensed.

As to claim 9, Platkowski does not teach a maximally 2 nanolitres. Where the range of article sizes disclosed in the prior art envelopes the recited range, and there is no showing of criticality of the recited range, such recited range would have been one of ordinary skill in the art. *In re Reven*, 390 F.2d 997, 156 USPQ 679 (CCPA 1968).

As to claim 10, Platkowski does not teach a plurality of chambers arranged in a array. However, duplicating the components of a prior art device is a design consideration within the skill of the art. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

As to claim 11, Platkowski does not state the voltage source has a frequency of at least approximately 15kHz. However, Platkowski teaches the electrodes 22 and 30 are supplied with an alternating voltage of *suitable frequency*. For the structure illustrated in FIGS. 1 through 3 for use in measuring water level, it has been found suitable to supply across the electrodes 22 and 30 an alternating voltage having a frequency of *about* 200 Hz. The optimization of proportions in a prior art device is a design consideration within the skill of the art. *In re Reese*, 290 F.2d 839, 129 USPQ 402 (CCPA 1961).

5. Claims 2 and 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Platkowski in view of Wallrafen 5092171.

As to claim 2, Platkowski does not state the bottom of the metal housing is completely made of metal and cannot be incorporated with another or other materials.

While anticipation requires the disclosure of each and every limitation of the claim at issue in a single prior art reference, it does not require such disclosure *in haec verba*. In re Bode, 550 F.2d 656, 660, 193 USPQ 12, 16 (CCPA 1977). In addition, it does not require that the prior art reference "teach" what the application at issue teaches. Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). Finally, Applicant is reminded that during examination claim limitations are to be given their broadest reasonable reading. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). However, Wallrafen teaches glass lead-through 7, 8 are provided for insulation, which is part of the bottom of the housing.

As to claim 3, Wallrafen teaches the round electrodes are attached/on the glass leading through to provide insulation where the electrodes are covered with unsintered PTFE.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Platkowski and Wallrafen in further view of Zanzucchi et al 5863708.

As to claim 4, neither Platkowski nor Wallrafen teaches etching insulation material on the sidewalls. However, Zanzucchi et al teaches a first well 36 having a thin film of a suitable metal oxide 57, such as tin oxide or indium tin oxide, is deposited onto the well material and is connected by means of an electrically conductive metal connection 58 to the end or outer edge of the well 36. The tin oxide coating 57 serves as a heater element for the well 36. The well 36 also has a surface bimetal film 59 and

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leads 60, suitably made of chromel-alumel alloys, forming a thermocouple to measure the temperature in the well when a source of current is applied to the tin oxide coating 57 and to the leads 58. One skilled in the art would easily incorporate the appropriate thin film technology (etching) to Platkowski and Wallrafen invention to help regulates the temperature in the well when voltage has been introduced.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Platkowski in view of Viegut et al WO 96/24030.

Platkowski does not teach the bottom of the reservoir is formed by silicon wafer. However, Viegut et al teaches a liner 58 may be disposed within the aperture 31 at a side thereof opposite to the side thereof adjacent the conductors 44 and 46. The liner may be a coating or other treatment applied to the aperture. The liner comprises a low friction substance, such as a silicone and the like. One skill in the art would incorporate this technology with Platkowski's invention to reduce a meniscus curvature formed by a fluid disposed within the liner and thereby within the receptacle 30.

Allowable Subject Matter

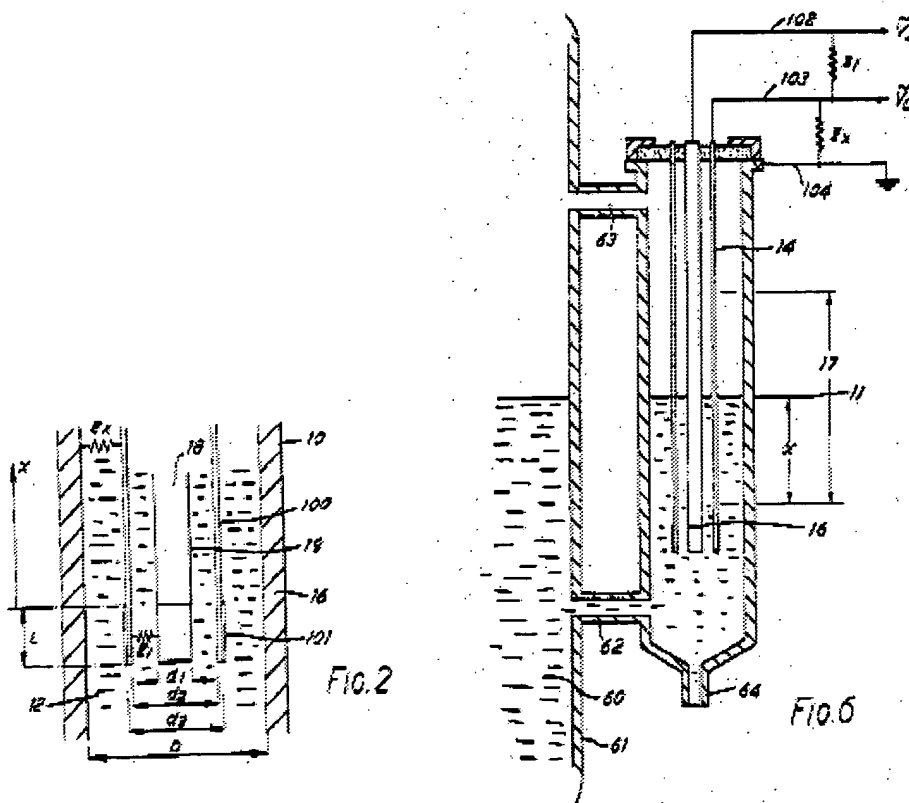
8. Claims 6-8 and 12-13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cosser 4646569 teaches an electrical impedance between the rod 18 as a first electrode and the cylinder 100 as a second electrode will be that of a conduction path

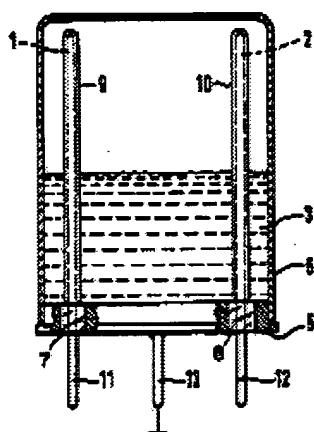
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through the fluid 12 in the region between the electrodes (indicated diagrammatically as $Z_{\text{sub.1}}$ (FIG. 2). The insulating coating 19 applied to the rod 18 substantially confines the conduction path to fluid between the electrodes at the tip section 15 and since the tip section is arranged to be below the minimum fluid 16, it is known that the impedance of this path will always be due to fluid. Similarly electrical impedance ($Z_{\text{sub.x}}$) between the cylinder 100 as a first electrode and the vessel 10 as a second electrode will be due to a conduction path through fluid in the region between the electrodes. Insulating coating 101 substantially confines conduction to the region away from tip section 15. It will be realised that the impedance of this second conduction path varies with the level of the fluid 12 in the vessel 10 (col. 2, lines 22-56). In figure 6 shows a passageways 62 and 63 to indicate other means for allowing liquid into a container/reservoir.



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Wallrafen 5092171 further shows in FIG. 3, the two electrodes 1 and 2 are held by the bottom 5 of a metal housing 6 obtainable for oscillating quartzes. Glass lead-through 7, 8 are provided for insulation. The housing is sealed hermetically by corresponding soldering. The liquid 3 covers about one-half of the electrodes 1, 2. Extensions of the electrodes 1, 2 serve at the same time as soldering pins 11, 12. A third soldering pin 13 connected directly to the housing bottom 5 forms the common counter-electrode (col. 4). In figure 3 shows the design choice an inventor made use to attach probes/electrodes to a container.

**Fig. 3**

Zanzucchi et al teaches a plurality of wells of the micro-laboratory discs 14 can be made by the following procedure. A glass substrate is coated sequentially on the both sides with a thin chromium layer and a gold film about 1000 angstroms thick in known manner, as by evaporation or chemical vapor deposition to protect the disc from subsequent etchants.

Closing

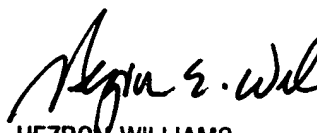
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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katina M Wilson whose telephone number is 703-308-7958. The examiner can normally be reached on Mon-Fri 6:15am-4:00pm, off 1st Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E Williams can be reached on 703-305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-3432 for regular communications and 703-308-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KW
November 20, 2003


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800